DEFENDER™ HIGH EFFICIENCY AIR-TIGHT WOODSTOVE

EPA Certified (4.21grams/hr)

Model TR001 Owners Manual

(save this manual for future reference)

READ ALL INSTRUCTIONS CAREFULLY BEFORE STARTING THE INSTALLATION OR OPERATING THE STOVE. FAILURE TO FOLLOW INSTRUCTIONS MAY RESULT IN PROPERTY DAMAGE, BODILY INJURY, OR EVEN DEATH.

DO NOT USE THIS STOVE IN A MOBILE HOME, MANUFACTURED HOME, TRAILER OR TENT – *NO EXCEPTIONS!*

This stove meets Test Standards: UL 1482-1996 U.S. & ULC-S627Canada

SAFETY INSTRUCTIONS

SAFETY NOTICE: IF THIS STOVE IS NOT PROPERLY INSTALLED A HOUSE/BUILDING FIRE MAY RESULT. FOR YOUR SAFETY, CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT PERMITS, RESTRICTIONS, AND INSTALLATION REQUIREMENTS FOR YOUR AREA.

READ ALL INSTRUCTIONS CAREFULLY.

1. The installation of this stove must comply with your local building code rulings. Please observe the clearances to combustibles (see reference figures 1–3). Do not place furniture or other objects within the clearance area.
2. Verify that the stove is properly installed before firing the stove for the first time. After reading these instructions, if you have any doubt about your ability to complete your installation properly, you must obtain the services of a professional licensed installer familiar with all aspects of safe and correct installation. DO NOT use temporary or makeshift compromises during installation.
3. DO NOT store wood, flammable liquids or other combustible materials too close to the unit. Refer to certification label on back of unit and reference figures 1 – 3 in this manual.
4. **Do not install this stove in a mobile home, manufactured home, trailer or tent** (**NO EXCEPTIONS!** per HUD Federal Standard: 24 CFR Ch.XX).
5. If any parts are missing or defective, please notify the dealer or manufacturer immediately. DO NOT OPERATE A STOVE THAT IS MISSING ANY PARTS!.
6. Do not tamper with combustion air control beyond normal adjustment capacities.
7. Always connect this stove to a chimney and vent to the outside. Never vent to another room or inside a building. DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE.
8. **DO NOT CONNECT** a wood burning stove to an aluminum Type B gas vent. This is not safe. Use approved masonry or a UL 103 HT (U.S) / ULC-S629 (Canada) Listed Residential Type and Building Heating Appliance Chimney. Use a 6” diameter chimney, that

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is high enough to give a good draft. (See specifics in Chimney Connections instructions).

9. Be sure that your chimney is safely constructed and in good repair. Have the chimney inspected by the fire department or a qualified inspector. Your insurance company should be able to recommend a qualified inspector.
10. Creosote or soot may build up in the chimney connector and chimney and cause a house/building fire. Inspect the chimney connector and chimney twice monthly during the heating season and clean if necessary. (See Chimney Maintenance, page 12).
11. In the event of a chimney fire, turn the air control to closed position, leave the building and **CALL THE FIRE DEPARTMENT IMMEDIATELY!** Have a clearly understood plan on how to handle a chimney fire by contacting your local or provincial fire authority for information on proper procedures in the event of a chimney fire.
12. To prevent injury, do not allow anyone to use this stove who is unfamiliar with the correct operation of the stove.
13. Do not operate stove while under the influence of drugs or alcohol.
14. For further information on using your stove safely, obtain a copy of the National Fire Protection Association (NFPA) publication, "Using Coal and Wood Stoves Safely" NFPA No. HS-10-1978. The address of the NFPA is Batterymarch Park, Quincy, MA 02269.
15. Dispose of ashes in a metal container with a tight fitting lid. Keep the closed container on a noncombustible floor or on the ground, well away from all combustible materials. Keep the ashes in the closed container until all cinders have thoroughly cooled. The ashes may be buried in the ground or picked up by a refuse collector.
16. The paint used on your stove may give off smoke and/or odor during the first fires. This may occur during the first 12 to 15 fires until the paint has cured. After the paint has cured this will end and not reoccur. Persons with lung conditions or owners of susceptible domestic pets (such as birds) should take prudent precautions. Open windows and doors as needed to clear smoke and odor. If the stove is overfired, paint discoloration will occur.
17. This stove has a painted surface which is durable but it will not stand rough handling or abuse. When installing your stove, use care in handling. Clean with soap and warm water when stove is **NOT** hot. Do not use any acids or scouring soap, as these solvents wear and dull the finish.
18. The walls of the firebox may become slightly distorted after a period of use. A slight distortion will not affect the operation of the stove.
19. While stove is in operation, all persons, especially young children should be alerted to the hazards from high surface temperatures. Keep away from a hot stove to avoid burns or clothing ignition.
20. If small children will be in the same room as the stove during operation, provide a sturdy barrier to keep them at a save distance from the stove. **NEVER LEAVE SMALL CHILDREN UNSUPERVISED** when they are in the same room as the stove.
21. Keep stove area clear and free from all combustible materials, gasoline, and other flammable vapors and liquids.
22. To prevent burns always wear protective clothing, leather hearth gloves and eye protection, while tending the fire.
23. While in operation, keep the feed door closed and secured at all times except while tending the fire.
24. Do not overfire the stove. Overfiring will occur if the feed door is left open during operation. Such actions can result in very dangerous operating conditions.
25. NO NOT ELEVATE FIRE! Build fire directly on the bottom of the firebox. This stove has not been tested with the use of grates, andirons, or other means of elevating fire and should not be used.
26. All power cords and electrical appliances and/or assemblies must be kept outside of the clearance dimensions shown in this manual for combustible materials.

NOTE: A LICENSED PROFESSIONAL HEATING AND COOLING CONTRACTOR SHOULD BE CONSULTED IF YOU HAVE QUESTIONS REGARDING THE INSTALLATION OF THIS SOLID FUEL BURNING APPLIANCE.

ASSEMBLY INSTRUCTIONS

NOTICE: Vogelzang International Corp. grants no warranty, stated or implied, for the installation or maintenance of your wood stove and assumes no responsibility of any incidental or consequential damages.

TOOLS AND MATERIALS REQUIRED FOR INSTALLATION

TOOLS

- Pencil
- 6 foot Folding Rule or Tape Measure
- Tin Snips
- Drill: Hand or Electric
- 1/8" dia. Drill Bit (for sheet metal screws)
- Screwdrivers (blade and Phillips type)
- 14mm Nut Driver or Ratchet with 14mm Socket
- Safety Glasses
- Gloves

MATERIALS

(NOTE: The following items are NOT included with your stove)

Flooring Protection: 35" x 41" as specified (see page 4)

Chimney Connection Pipe: 6" black steel (24 ga. min.) straight stove pipe or elbow (as required)

1/2" Sheet Metal Screws

Chimney: Existing 6" Lined Masonry Chimney or 6" Inside Dia. Listed Type HT chimney.

Furnace Cement (manufacturer recommends Rutland Code 78 or equivalent)

CAUTION: STOVE IS HEAVY. MAKE SURE YOU HAVE ADEQUATE HELP AND USE PROPER LIFTING TECHNIQUES WHENEVER MOVING STOVE.

1. Uncrate the stove and remove cardboard packing and protective poly bag.
2. Remove four (4) legs and hardware pack from inside stove. NOTE: Stove may be lightened during installation by removing fire brick. Replace firebrick before using. There are three different sizes brick. Note the location of each while removing or refer to illustration 1 for proper location inside firebox.
3. Place flattened carton on floor and lay the stove on it's back.
4. Remove the four 14mm nuts from the threaded studs located on each corner (total of 16).
5. Place leg in position and secure using the nuts removed in step #4. Tighten nuts securely.
6. Carefully lift the stove into an upright position.
7. Cut and remove wire tie holding "Z" bar in place. The "Z" bar is located at the top front inside of stove. The plastic wire tie is for shipping purposes only.
8. Level stove with adjustable glides on bottom of legs.

Optional Blower Attachment
(not included with stove)

1. Attach blower assembly (#3) to back of rear deflector. NOTE: Make sure ceramic gasket is positioned between rear deflector heat shield and blower assembly. Use four screws provided to fasten the blower to rear heat shield.
2. Route the power cord away from stove. Do not allow the power cord to touch any hot surfaces. Keep power cord at least 12˝ from stove surfaces.
3. Once stove is positioned, plug power cord into a grounded 120v outlet.

LOCATING STOVE

1. The stove must be placed on solid concrete, solid masonry, or when installed on a combustible floor, on a listed floor protector, such as Hy-C or Imperial Model UL 3648BK or equivalent with 0.8 R-factor. (NOTE: to calculate R-value of alternative materials see page 16). The base must extend at least 18" beyond the front of the access door, 8" to the sides of fuel opening, and **must** extend under and 2 inches beyond either side of the stove pipe if it is elbowed towards a wall. (See figures 1 & 3 and consult local building codes and fire protection ordinances). A grouted ceramic floor tile installed per local building code is considered a durable equivalent.

CAUTION: (FIRE HAZARD) CARPETING AND OTHER COMBUSTIBLE MATERIAL SHALL NOT COVER THE FLOOR PROTECTOR. THESE MATERIALS MUST REMAIN OUTSIDE OF COMBUSTIBLE CLEARANCES, SEE FIG. 1 – 3.

2. The stove must have its own flue. **DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING OTHER APPLIANCES.**
3. After observing the clearances to combustible materials (figures 1–3), locate your floor protector accordingly (figure 1) and carefully place the stove in your selected location. Install stove pipe, elbows, and thimble as required, utilizing either a recently cleaned and inspected 6" masonry chimney or a 6" i.d. listed chimney.

Continued on next page

4. Use 6" round black stove pipe, not galvanized stove pipe. Secure pipe sections with three (3) sheet metal screws in each stove pipe and/or elbow joint to firmly hold the pipe sections together. **DO NOT CONNECT THIS STOVE TO ANY AIR DISTRIBUTION OR DUCT SYSTEM.**
5. Recheck clearances from the stove, connector stove pipe, and corner clearances using the illustrations in figures 1–3 and your local building codes or fire protection ordinances.

   NOTE: Drywall faced with brick or stone must be considered a combustible surface.
6. ***DO NOT INSTALL THIS STOVE IN A MOBILE HOME, MANUFACTURED HOME, TRAILER OR TENT – NO EXCEPTIONS! (HUD Federal Standard: 24 CFR Ch.XX)***
7. The clearances provided are minimum dimensions determined by Omni Test Laboratories, Inc., the manufacturer's testing laboratory. Installation of this stove must comply with the latest edition of NFPA 211 for reduced clearances and/or your local building code rulings. Use whichever minimum dimensions are LARGEST.

   Failure to follow these minimum clearance requirements may result in an unsafe installation and could cause a fire.
8. This stove meets U.S. Test Standard: UL 1482-1996 and Canadian Test Standard ULC-S627.
9. Always locate stove to provide a source of fresh air into the room where the unit is installed. Failure to do so may result in air starvation of other fuel burning appliances and the possible development of hazardous conditions.

CAUTION: KEEP FURNISHINGS AND OTHER COMBUSTIBLE MATERIALS AWAY FROM THE STOVE AND OUTSIDE MINIMUM CLEARANCES.

CAUTION: REPLACE FIREBRICKS BEFORE FIRING WOODSTOVE. POSITION FIREBRICKS SO NO GAPS REMAIN BETWEEN BRICKS.

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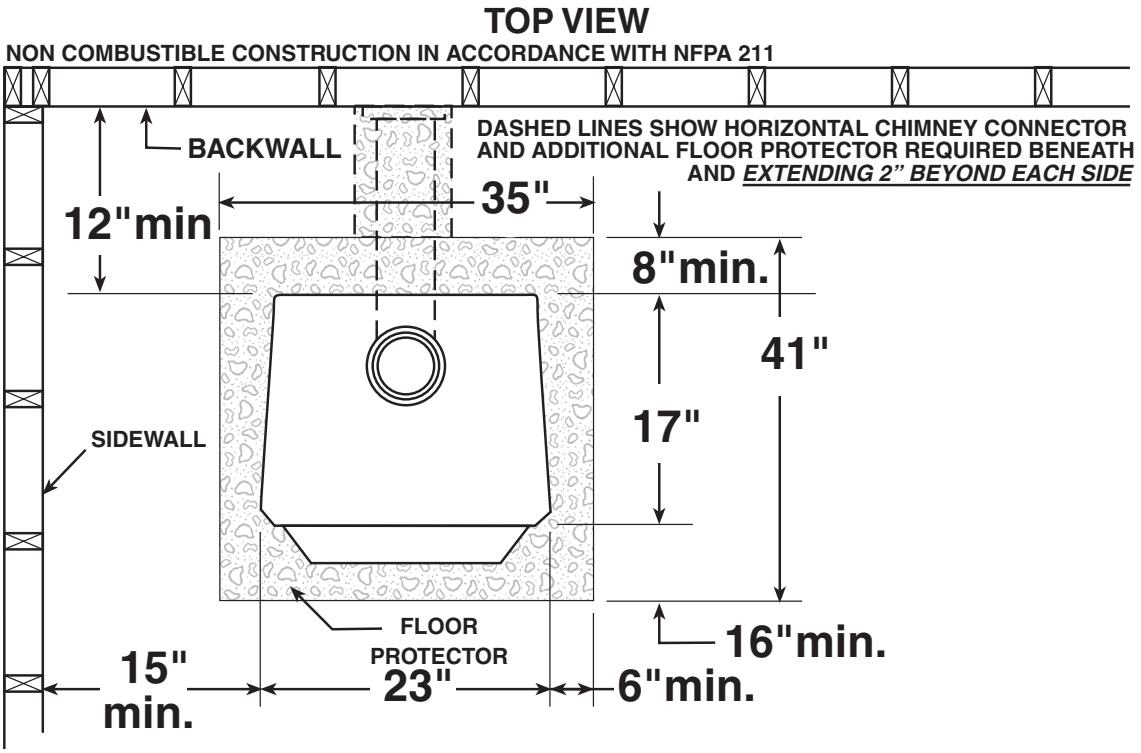


Fig. 1 – TOP VIEW Minimum Clearance Dimensions from Combustible Surfaces

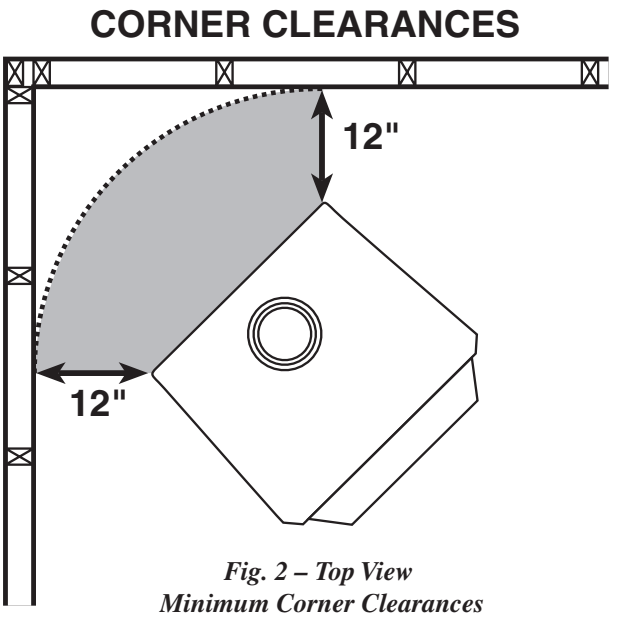


Fig. 2 – Top View
Minimum Corner Clearances
from Combustible Surfaces

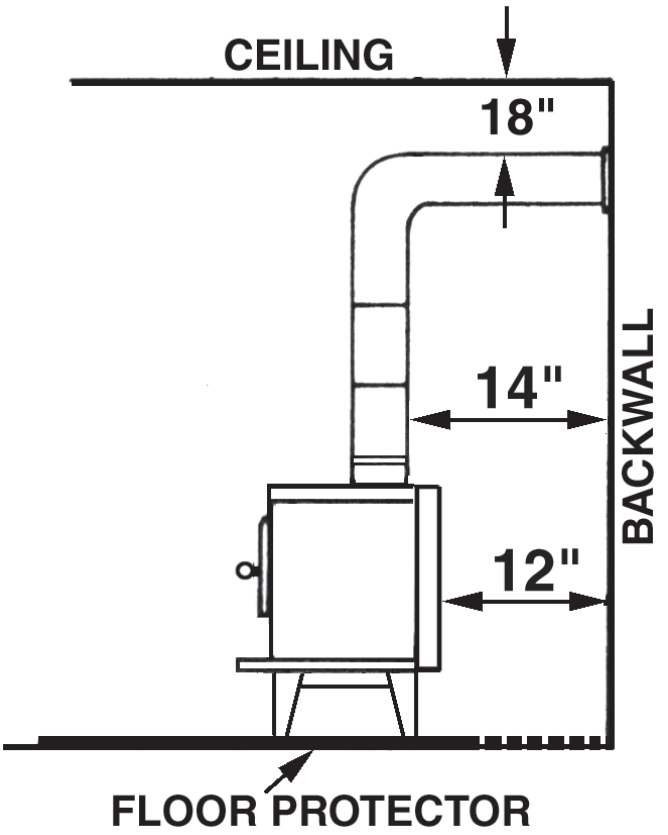


Fig. 3b – Side View
Minimum Clearance Dimensions
from Combustible Surfaces

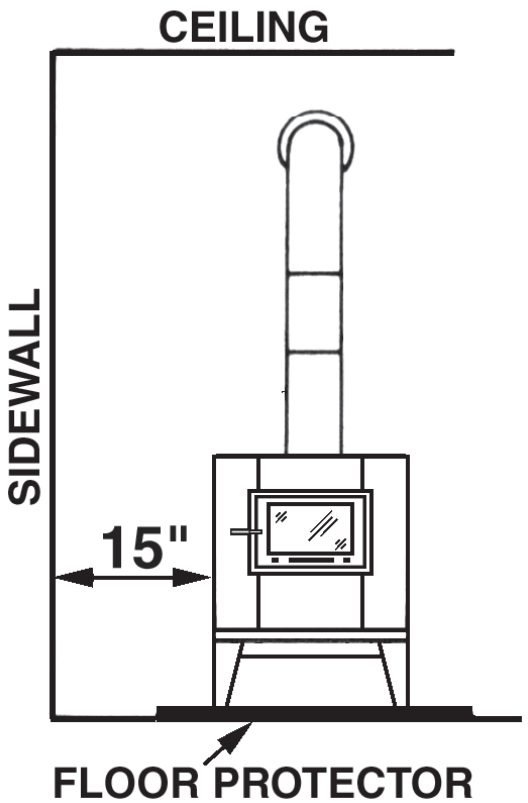
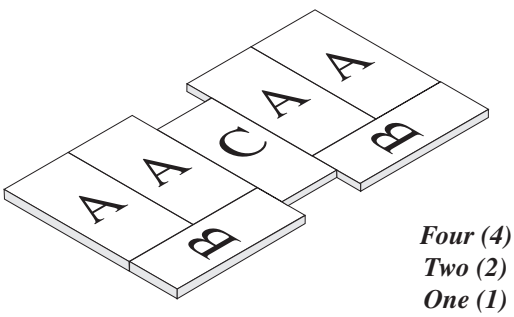


Fig. 3a – Front View
Minimum Clearance Dimensions
from Combustible Surfaces

FIREBRICK ASSEMBLY

Firebrick extends the life of your stove and radiates heat more evenly. Check to see that all firebricks are in their correct positions and have not become misaligned during shipping or assembly. If removed for ease of locating stove, firebrick must be replaced before firing. See diagrams, fig. 4a – 4c, for proper positioning.

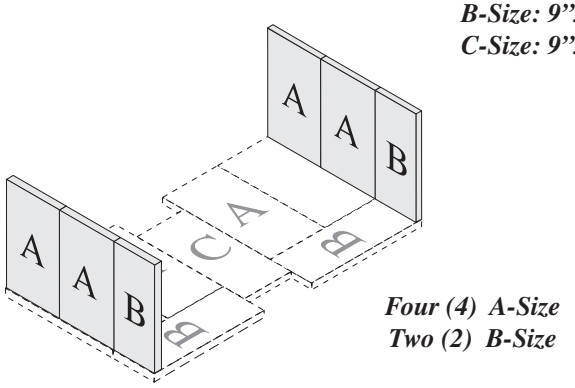
CAUTION: NEVER OPERATE STOVE WITH MISSING OR CRACKED FIRE BRICKS!



Four (4) A-Size
Two (2) B-Size
One (1) C-Size

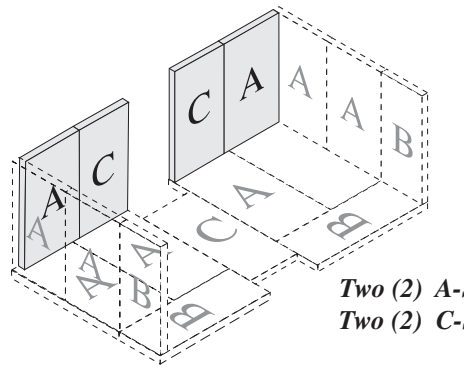
Fig.4a– Step 1, Bottom Firebrick Installation

Fire Brick Dimensions
A-Size: 9”x4½”x1¼”
B-Size: 9”x2¾”x1¼”
C-Size: 9”x3¼”x1¼”



Four (4) A-Size
Two (2) B-Size

Fig.4b– Step 2, Side Firebrick Installation



Two (2) A-Size
Two (2) C-Size

Fig.4c– Step 3, Back Firebrick Installation

CONNECTOR PIPE INSTALLATION

1. The tapered end of the connector stovepipe fits into the stove flue collar.
2. Horizontal pipe runs must slope upwards towards the chimney at least 1/4” per foot of horizontal run.
3. You must have at least 18 inches of clearance between any horizontal piping and the ceiling.
4. The pipe cannot extend into the chimney flue (figure 5).
5. Secure pipe/elbow sections with three (3) sheet metal screws at each joint to make the piping rigid.
6. It is recommended that no more than two (2) 90 degree bends be used in the stovepipe installation. The use of more than two 90 degree bends may decrease the amount of draw and possibly cause smoke spillage. Where possible, use only corrugated (nonadjustable) elbows. These provide a better seal.
7. The connector pipe must not pass through an attic or roof space, closet, or any concealed space, or floor, ceiling, wall or combustible construction. (See Chimney Connector Systems & Clearances, page 17). A UL 103 HT Listed (U.S.) or ULC-S629 (CANADA) chimney **must** be used from the first penetration of ceiling or wall to the chimney cap. **Never use single wall connector pipe as a chimney - a house fire could result.**

NOTE: CONNECTOR PIPE IS *NOT INCLUDED*. TO PURCHASE, VISIT YOUR LOCAL HARDWARE, HOME OR BUILDING CENTER. SEE “LOCATING STOVE” PAGE 4 FOR ADDITIONAL SPECIFICATIONS.

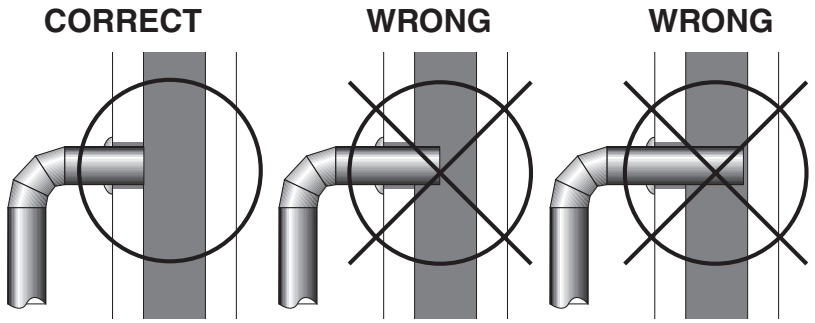


Fig.5 – Stovepipe/Flue Connections

CHIMNEY CONNECTIONS

The stove must be connected to either a masonry or manufactured metal chimney built and tested to the specifications listed on the previous pages.

Chimneys perform two functions:

1). As a means of exhausting smoke and flue gases which are the result of fuel combustion.

2). The chimney provides "draft" which allows oxygen to be continuously introduced into the appliance, so that proper combustion is possible. This stove relies on natural draft to operate.

NOTICE: Always provide a source of fresh air into the room where the stove is located. Failure to do so may result in air starvation of other fuel burning appliances and the possible development of hazardous conditions, fire or death.

Your stove itself does not create draft. Draft is provided by the chimney. To achieve proper draft your chimney must meet the three minimum height requirements detailed in figures 7 – 9. A minimum of 0.05 w.c. (measured in water column) is required for proper drafting to prevent back puffing, smoke spillage, and to maximize performance. (Gauges to measure draft are readily available at stove stores and are economical to rent or purchase.)

Factors such as wind, barometric pressure, trees, terrain and chimney temperature can have an adverse effect on the draft. The manufacturer cannot be held responsible for external factors leading to less than optimal drafting.

Should you have a problem with inadequate draft, you should contact a licensed heating and cooling contractor for assistance in solving the problem.

IMPORTANT Installation Points

1. Size chimney flue to stove collar. This stove requires a 6" diameter flue.
2. Never connect this unit to a chimney serving another appliance.
3. The chimney must meet all minimum height requirements.
4. Never use a chimney to ventilate a cellar or basement.
5. Contact your local building authority for approved methods of installation and any necessary permits and/or inspections.

MASONRY CHIMNEY

Before using an existing masonry chimney, clean the chimney, inspect the flue liner and make any repairs needed to be sure it is safe to use. Make repairs before attaching the stove. The connector stove pipe and fittings you will need to connect directly to a masonry chimney are shown in figure 6.

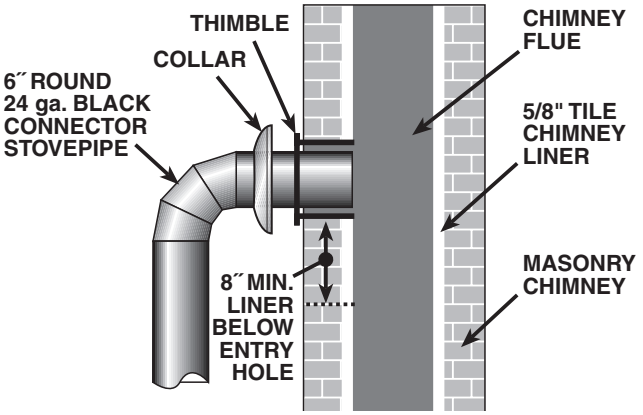


Fig.6 - Masonry Chimney Connection

If the connector stove pipe must go through a combustible wall before entering the masonry chimney, consult a qualified mason or chimney dealer. The installation must conform to local building and fire codes and latest edition of NFPA 211.

If there is a cleanout opening in the base of the chimney, close it tightly.

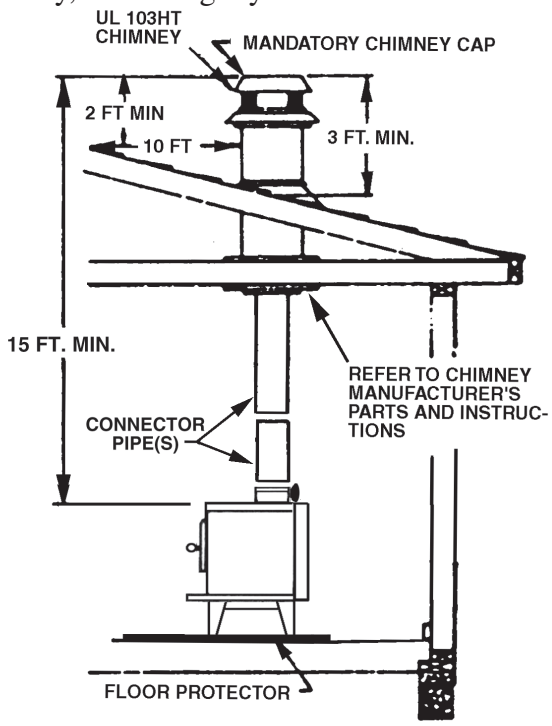


Fig. 7 - Chimney Construction Through Attic Space

MANUFACTURED CHIMNEY

REFER TO CHIMNEY AND CHIMNEY CONNECTOR MAKER'S INSTRUCTIONS FOR INSTALLATION AND USE.

Use only 6" diameter listed chimney UL 103 HT (U.S.) or ULC-S629 (Canada). Chimney made to this listing is High Temperature rated to 2100 degrees Fahrenheit. Use chimney from only one manufacturer. Never mix brands. Carefully follow the chimney manufacturer's stated requirements and clearances. Use the chimney manufacturer's attic guards, roof supports, flashing and fire stops when passing through a ceiling. Use a listed thimble when passing through a combustible wall. Do not use makeshift compromises during installation. ***Never use a single-wall connection pipe as a chimney!***

When using a pre-existing chimney, have it's condition and installation inspected before using. Make sure that the chimney meets all of the UL rating requirements listed above. Be aware that not all manufactured chimney is of the UL 103 HT (US) or ULC-S629 (Canada) type.

NOTE: It is recommended that you contact a licensed heating and cooling contractor (consult your local yellow pages) for chimney installation.

Manufactured chimney with the proper required UL listing is available from most home centers, hardware stores, and HVAC supply stores.

If you have access to the internet, you may wish to view chimney manufacturers' information on-line. See, www.duravent.com, www.selkirkinc.com, or www.mtlfab.com.

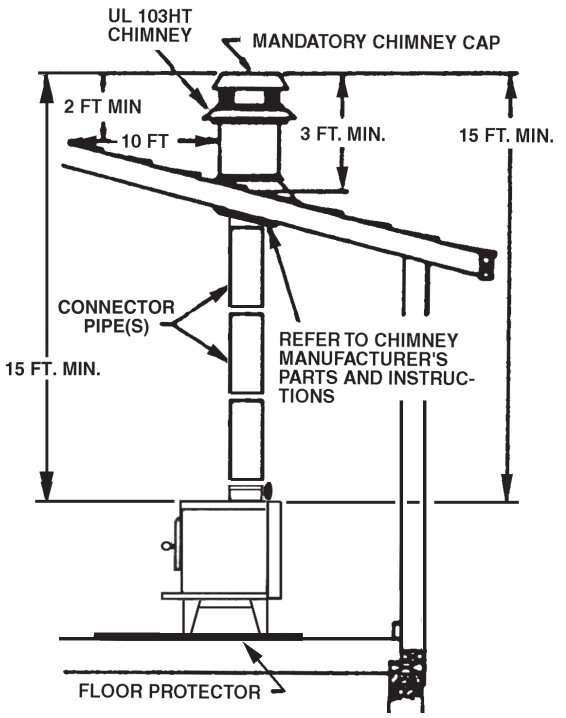


Fig. 8 - Chimney Construction Through Roof

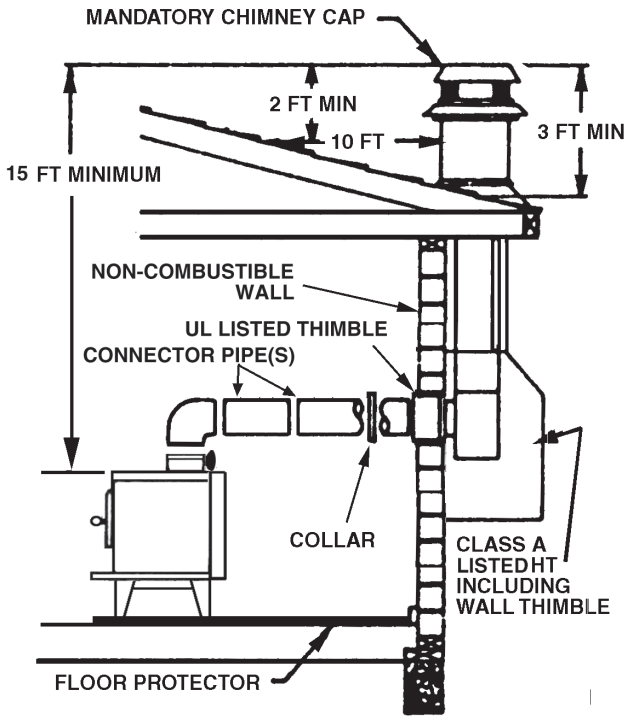


Fig. 9 - Chimney Connection to Firebox Through Masonry Wall

VENTING TO EXISTING FIREPLACE

In some instances, people desire to convert an existing fireplace for stove use. Usually, safe connection to an existing masonry chimney requires more work than using a prefabricated chimney. The existing fireplace must be closed and sealed at the damper with high-temperature caulk, ceramic wool, or furnace cement. Prior to installation, clean and inspect the existing flue and smoke shelf. Installation should be designed so the system can be dismantled for periodic cleaning and inspection. Before conversion, make sure the existing chimney

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is structurally sound, the chimney incorporates a flue liner and make sure it is in good condition. (A flue liner consists of clay tile that protects the brickwork of a chimney. If a chimney does not have a liner, or it is damaged, have it relined by a professional. ***DO NOT USE a chimney that is unlined or damaged!***) If you have any question regarding the condition of the chimney, consult a qualified licensed contractor, qualified engineer, competent mason, certified Chimney Sweep, or a knowledgable inspector. Consult your insurance company if you cannot find a qualified expert.

CAUTION: Not all fireplaces are suitable for conversion to a wood stove. Check with a qualified expert.

Many prefabricated fireplaces are of the "zero-clearance fireplace" category. These consist of multilayered metal construction. They are designed with enough insulation and/or air cooling on the base, back and sides so they can be safely installed in direct contact with combustible floors and walls. Although many prefabricated fireplaces carry endorsements from nationally recognized organizations for use as fireplaces, they have not been tested for connection to wood stove heaters. Connecting a stove to such a device will void the manufacturer's warranty.

Steel-lined fireplaces are constructed with 1/4" firebox liner, an air chamber in connection with 8" of masonry. These can be safely used with wood burning stoves. They contain all the essential components of a fireplace, firebox, damper, throat, smoke shelf, and smoke chamber. Many look identical to masonry fireplaces and should be checked carefully before connecting a stove to them.

Venting a stove directly into a fireplace does not meet code and should not be attempted. (This constitutes connection to another appliance - the fireplace.) Combustion products will be deposited and build up in the firebox or fireplace. The stove warranty will be void with such an installation. Do not create a hazard in your home by connecting in this manner.

FIREPLACE INSTALLATION

Directly connecting the stovepipe into the existing masonry chimney (figure 10 "Type A" fireplace conversion) of the fireplace is the only approved method of installation. This is a complicated and involved process and to insure safety should only by done by a qualified installer.

1. An entry hole must be cut through the masonry and tile liner with minimal damage to the liner. At least 8" of liner must remain below the entry position. When locating the stove and stovepipe, all minimum clearances must be observed from combustible surfaces including mantels, combustible trimwork, ceilings and walls. Positioning the center of the stove pipe entry into the chimney 24" below the ceiling should insure proper clearance for a 6" stovepipe.
2. Install a metal or fire clay (5/8" minimum thickness) thimble. Make sure the thimble is flush with the inner surface of the chimney liner and does not protrude into the flue (see figure 4 on page 6).
3. Secure the thimble with refractory mortar. The thimble should be surrounded by 8" of solid unit masonry brickwork or 24" of stone.
4. Install the stovepipe into the thimble as far as possible without extending past the flue lining (see figures 4 & 6 on pages 6 & 7).
5. A small airspace (about 1/2") should remain between the stovepipe and thimble to allow for

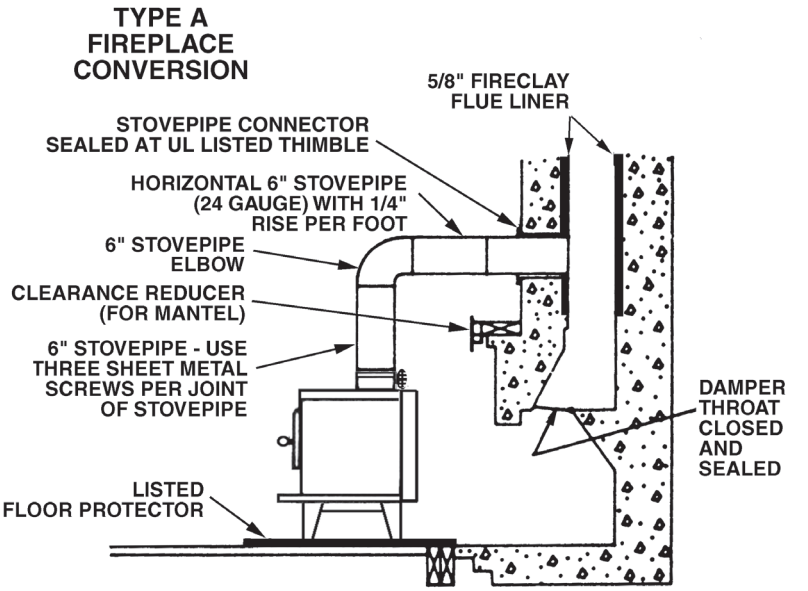


FIG. 10 - Fireplace Conversion

expansion of the pipe. Seal this airspace with high-temperature caulking or ceramic wool.

6. Secure and seal the damper in the closed position using high-temp caulking, ceramic wool, or furnace cement. Also check to see if the chimney has a cleanout. If it does, make sure it is closed and sealed as well. A leaky cleanout will greatly reduce draft efficiency.

If you have any questions regarding venting your stove, contact the manufacturer or contact the National Fire Protection Association (NFPA) and request a copy of the latest editions of NFPA Standard 211 and NFPA Standard 908. Their address is:

Battery March Park, Quincy, MA 02269.

OPERATING INSTRUCTIONS

CAUTION: HOUSE FIRE HAZARDS

• DO NOT STORE WOOD ON FLOOR PROTECTOR, UNDERNEATH STOVEPIPE OR ANYWHERE WITHIN MINIMUM CLEARANCES FROM COMBUSTIBLE SURFACES SPECIFIED FOR THIS STOVE.

• OVERFIRING MAY CAUSE A HOUSE FIRE. YOU ARE OVERFIRING IF A UNIT OR CHIMNEY CONNECTOR GLOWS RED.

WARNING: EXPLOSION HAZARD

• NEVER USE CHEMICALS, GASOLINE, GASOLINE-TYPE LANTERN FUEL, KEROSENE, CHARCOAL LIGHTER FLUID, OR SIMILAR FLAMMABLE LIQUIDS TO START OR "FRESHEN-UP" A FIRE IN THE STOVE.

• KEEP ALL FLAMMABLE LIQUIDS, ESPECIALLY GASOLINE, OUT OF THE VICINITY OF THE STOVE— WHETHER IN USE OR IN STORAGE.

OPERATING SAFETY PRECAUTIONS

1. NEVER OVERFIRE THIS STOVE BY BUILDING EXCESSIVELY HOT FIRES AS A HOUSE/BUILDING FIRE MAY RESULT. YOU ARE OVERFIRING THE STOVE IF UNIT OR STOVEPIPE BEGINS TO GLOW OR TURN RED.

2. NEVER BUILD EXTREMELY LARGE FIRES IN THIS TYPE OF STOVE AS DAMAGE TO THE STOVE OR SMOKE LEAKAGE MAY RESULT

3. DO NOT BUILD FIRE TOO CLOSE TO GLASS.

4. UNIT IS HOT WHILE IN OPERATION. KEEP CHILDREN, CLOTHING, AND FURNITURE AWAY. CONTACT MAY CAUSE SKIN BURNS. DO NOT TOUCH THE STOVE AFTER FIRING UNTIL IT HAS COOLED.

5. PROVIDE AIR INTO THE ROOM FOR PROPER COMBUSTION.

6. INSPECT STOVEPIPE EVERY 60 DAYS. REPLACE IMMEDIATELY IF STOVEPIPE IS RUSTING OR LEAKING SMOKE INTO THE ROOM.

This stove is designed to burn WOOD FUEL ONLY!

Hardwood, 16" to 18" should be split and air dried (seasoned), for 6 months to obtain maximum burning efficiency. Wood should be stored in a dry, well ventilated area.

NOTICE: USE SOLID WOOD MATERIALS ONLY. DO NOT BURN GARBAGE OR FLAMMABLE FLUIDS. DO NOT BURN COAL AS THIS STOVE IS NOT DESIGNED TO ACCOMMODATE THE AIR FLOW (DRAFT) NECESSARY TO PROPERLY BURN COAL OR COAL PRODUCTS. DO NOT ELEVATE FIRE OR USE GRATES OR ANDIRONS. BUILD FIRE DIRECTLY ON BOTTOM OF FIREBOX.

BUILDING A FIRE

1. Open air inlet control fully.
2. Open the feed door and place several wads of crushed paper in the firebox.
3. Cover the paper with a generous amount of kindling in a teepee fashion and a few small pieces of wood.
4. Ignite the paper and leave the door open slightly. **DO NOT LEAVE STOVE UNATTENDED WITH DOOR OPEN!**

Continued on next page

5. Add large pieces of wood as the fire progresses being careful not to overload. (Do not fill firebox beyond firebrick area.) An ideal coal bed of 1 –2" should be established t achieve optimum performance.
6. This unit is designed to function most effectively when air is allowed to circulate to all areas of the firebox. An idea; rake a slight (1˝ to 2˝ wide) trough in the center of the coal bed from front to back prior to loading the fuel.
7. Once fuel has been loaded, close the door and fully open air inlet control until fire is well established (approximately 10 minutes) being careful not to overfire.
8. Re-adjust the air inlet control to desired burn rate. (If excessive smoke fills the firebox, open air inlet control slightly until flames resume and wood is sufficiently ignited.) The basic rule of thumb is "closed - low," "half way open - medium" and "fully open - high."

ADDING FUEL

Add small amounts of fuel each hour or so instead of piling large quantities of fuel at one time. This will insure a more complete combustion process and less buildup of tars, soot, or creosote will occur in the chimney.

1. When refueling, adjust air inlet control to the fully open position. When fire brightens, slowly and carefully open the door. This procedure will prevent gases from igniting causing smoke and flame spillage.
2. Add fuel being careful not to overload or overfire the stove.
3. When adding fuel be careful not to smother the fire. Do not build fires against glass on models with glass door.
3. Close the feed door and secure tightly.
4. Adjust the air inlet control as described above.
5. Empty ashes regularly. Do not allow ashes to pile up (see Safety Instructions #11 on page 2.)
6. Properly dispose of hot ashes (see Safety Instructions, item #11 on page 2.)
7. Do not overfire the stove.

CAUTION: DO NOT OVERFIRE APPLIANCE. YOU ARE OVERFIRING IF THE CHIMNEY CONNECTORS OR STOVE GLOWS RED. CLOSE THE DOOR AND SHUT DAMPER IMMEDIATELY TO REDUCE THE AIR SUPPLY TO THE FIRE. THIS WILL SLOW DOWN THE FIRE.

CAUTION: SLOW BURNING FIRES AND EXTENDED USE MAY CAUSE EXCESSIVE CREOSOTE BUILDUP. IGNITION OF CREOSOTE BUILDUP OR OVERFIRING MAY CAUSE A CHIMNEY FIRE. CHIMNEY FIRES BURN EXTREMELY HOT AND MAY IGNITE SURROUNDING MATERIALS. IN CASE OF A CHIMNEY FIRE CALL THE FIRE DEPARTMENT IMMEDIATELY.

OPERATING TIPS

Preventing Creosote Buildup

1. Burn with air control open for several minutes at numerous intervals throughout the day during the heating season, being careful not to over-fire the unit.
2. Burn stove with air inlet control wide open for several minutes every time you apply fresh wood. This allows wood to achieve the charcoal stage faster and burns wood vapors which might otherwise be deposited within the heating system.
3. **BURN ONLY SEASONED WOOD**. Avoid burning wet or green wood. Seasoned wood has been dried for at least one year.
4. A small fire is preferable to a large smoldering one that can deposit creosote within the heating system.
5. Establish a routine for the handling of fuel, wood burner and firing technique. Check daily for creosote build-up until experience shows how often you need to clean for safe operation. Be aware that the hotter the fire, the less creosote is deposited and weekly cleanings may be necessary in mild weather even though monthly cleanings may be enough in colder months.

WARNING: IN CASE OF CHIMNEY FIRE (1) CLOSE AIR INLET CONTROL (2) GET OUT OF THE HOUSE (3) CALL THE FIRE DEPARTMENT.

CHIMNEY DRAFT

Draft is a function of the chimney, not the stove — do not expect the stove to draw. Smoke spillage into the house or excess buildup of condensation or creosote in the chimney are warnings that the chimney is NOT functioning properly. Correct the problem before using the stove. Following are some possible causes for improper draft.

1. The connector stovepipe may be pushed into the chimney too far, stopping the draft.

2. If the chimney is operating too cool, water will condense in the chimney and run back into the stove. Creosote formation will be rapid and may block the chimney. Operate the stove at a fire level high enough to keep the chimney warm preventing this condensation.

3. If the fire burns well but sometimes creates excessive smoke or burns slowly, it may be caused by the chimney top being lower than another part of the house or a nearby tree. The wind blowing over a house or tree, falls on top of the chimney like water over a dam, beating down the smoke. The top of the chimney should be at least three (3) feet above the roof and be at least two (2) feet higher than any point of the roof within ten (10) feet.

NOTE: A DRAFT READING OF 0.05 TO 0.06 W.C. (WATER COLUMN) IS SUGGESTED FOR PROPER BURNING OF THIS STOVE.

GLASS CARE

The following usage and safety tips should be observed:

1. Inspect the glass regularly for cracks and breaks. If you detect a crack or break, extinguish the fire immediately and contact the manufacturer for a replacement.
2. Do not slam the door or otherwise impact the glass. When closing doors, make sure that logs or other objects do not protrude to impact the glass.
3. Do not build fires against (or that might fall against) the glass.
4. Do not clean the glass with materials that may scratch (or otherwise damage) the glass. Scratches on the glass can develop into cracks or breaks during operation.
5. Never attempt to clean the glass while the unit is hot. If deposits are not very heavy, normal glass cleaners are adequate using a soft, non-abrasive cleaning pad. Heavier deposits may be removed with oven cleaners.
6. Never put substances which can ignite explosively in the unit. Even small explosions in confined areas can blow out the glass.

Gasket and Glass cleaning products are available at local retail home centers. Manufacturers of cleaning products for wood stoves include, A.W. Perkins Co. (www.awperkins.com) or Rutland Products (www.rutland.com).

GLASS REPLACEMENT

CAUTION: REPLACE GLASS ONLY WITH 5MM HIGH TEMPERATURE CERAMIC GLASS OF THE PROPER SIZE. DO NOT USE TEMPERED GLASS OR DOUBLE THICKNESS WINDOW GLASS!

Glass Replacement Procedure:

1. Ensure appliance is not in operation and is thoroughly cooled.
2. Remove screw and glass clip. (See parts list and diagram.)
3. Lift glass out from glass clip.
4. Remove old gasket and clean glass.
5. Replace new gasket starting at the bottom of glass working along edges, being sure to center gasket channel on glass.
6. Trim to length and butt ends together.
7. Replace glass into door, being sure not to overtighten screw and clip.

After extensive use, the gasket material which provides glass and door seal may lose it's resiliency and will need to be replaced. Inspect glass and door gaskets periodically to ensure proper seal; if gaskets become frayed or worn, replace immediately.

Continued on next page

Door Gasket Replacement Procedure:

1. Ensure appliance is not in operation and is thoroughly cooled.
2. Remove old door gasket and clean channel.
3. Using an approved, high temperature gasket cement, apply a thin coat in bottom of channel.
4. Starting at hinge side of door, work 3/8-inch fiberglass gasket material into channel around door unit, end butt and trim to length to ensure no gaps.
5. Close door and allow three to four hours for cement to set before firing appliance.

CHIMNEY MAINTENANCE

CREOSOTE – Formation and Removal

When wood is burned slowly, it produces tar and other organic vapors which combine with expelled moisture to form creosote. The creosote vapors condense in the relatively cool chimney flue of a slow-burning fire. As a result, creosote residue accumulates on the flue lining. If ignited, this creosote creates an extremely hot fire which may ignite surrounding materials resulting in a building fire.

The chimney connector and chimney should be inspected (at least) **twice a month** during the heating season to determine if a creosote buildup has occurred.

If creosote has accumulated, it should be removed. Failure to remove creosote may result in ignition and may cause a house/building fire. Creosote may be removed using a chimney brush or other commonly available materials from your local hardware retailer.

Chimney fires burn very hot. If the unit or chimney connector should glow red, reduce the fire by closing the inlet air control and immediately call the fire department.

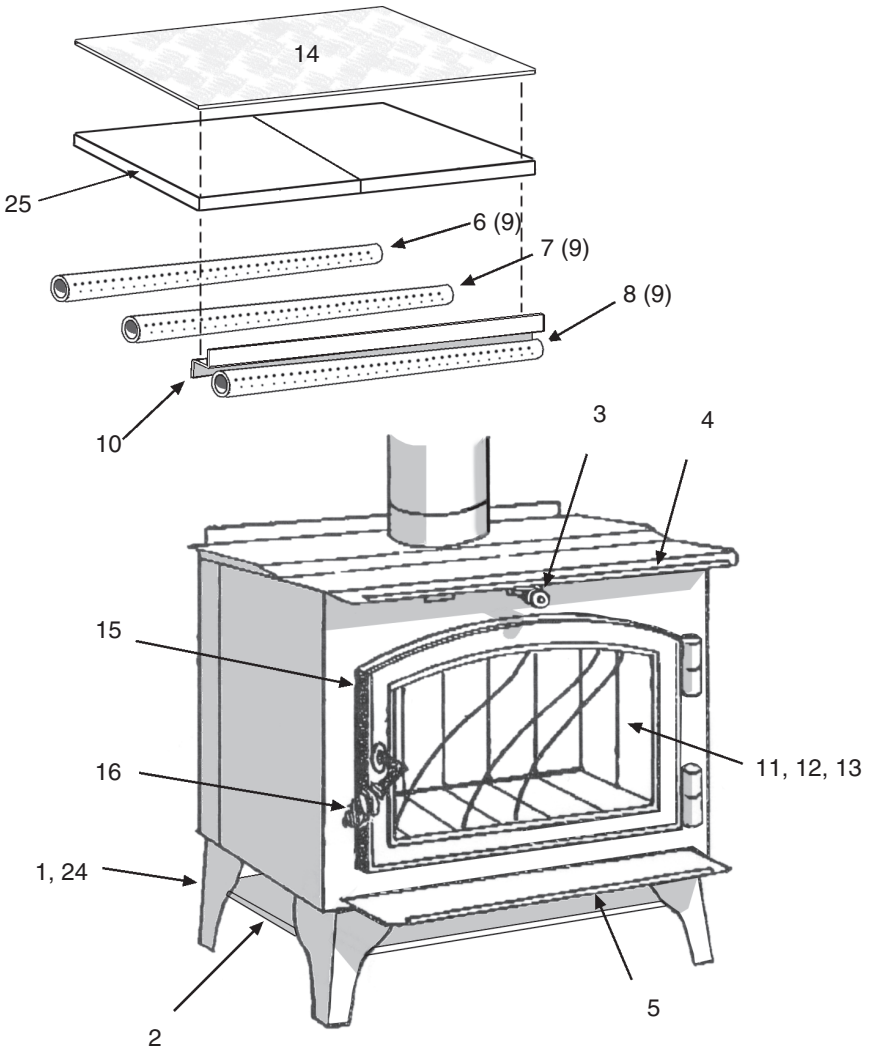
Continued in next column

CAUTION: A CHIMNEY FIRE MAY CAUSE IGNITION OF WALL STUDS OR RAFTERS WHICH WERE ASSUMED TO BE A SAFE DISTANCE FROM THE CHIMNEY. IF A CHIMNEY FIRE HAS OCCURRED, HAVE YOUR CHIMNEY INSPECTED BY A QUALIFIED EXPERT BEFORE USING AGAIN.

A fire in the firebox may be smothered by pouring a large quantity of coarse salt, baking soda, or cool ashes on top of the fire.

PARTS - TR001 DEFENDER HIGH-EFFICIENCY STOVE

When ordering missing or replacement parts, always give the **Model Number** of the stove, **Part Number**, and **Part Description**. Use the illustrations and part lists provided to identify parts.



Part No.	Description	Qty.
1	Legs	4
2	Heat Sheild	1
3	Handle, Slide Draft Spring	1
4	Nickle Trim, Top Plate	1
5	Nickle Trim, Hearth	1
6	Air Tube, Rear	1
7	Air Tube, Middle	1
8	Air Tube, Front	1
9	Retainer Pins, Air Tube	3
10	“Z” Bar, Baffle Support	1
11	Fire Brick, A-size (9”x4-1/2”x1-1/4”)	12
12	Fire Brick, B-size (9”x2-3/4”x1-1/4”)	3
13	Fire Brick, C-size (9”x3-1/4”x1-1/4”)	2

Part No.	Description	Qty.
14	Ceramic Fiber Pad	1
15	**Door Assembly (complete)**	**1**
16	Handle Assembly (complete)	1
17	Door Frame	1
18	Door Glass	1
19	Gasket, 3/8” Fiberglass Glass	1
20	Retainer, Glass	1
21	Screws, Glass Retainer	8
22	Gasket, 3/8” Fiberglass Door	1
23	Hinge Pin	2
24	Nuts (for legs)	4
25	C-Cast Fiber Board (9”x9”x5/8”)	2

PARTS - TR001 DEFENDER HIGH-EFFICIENCY STOVE

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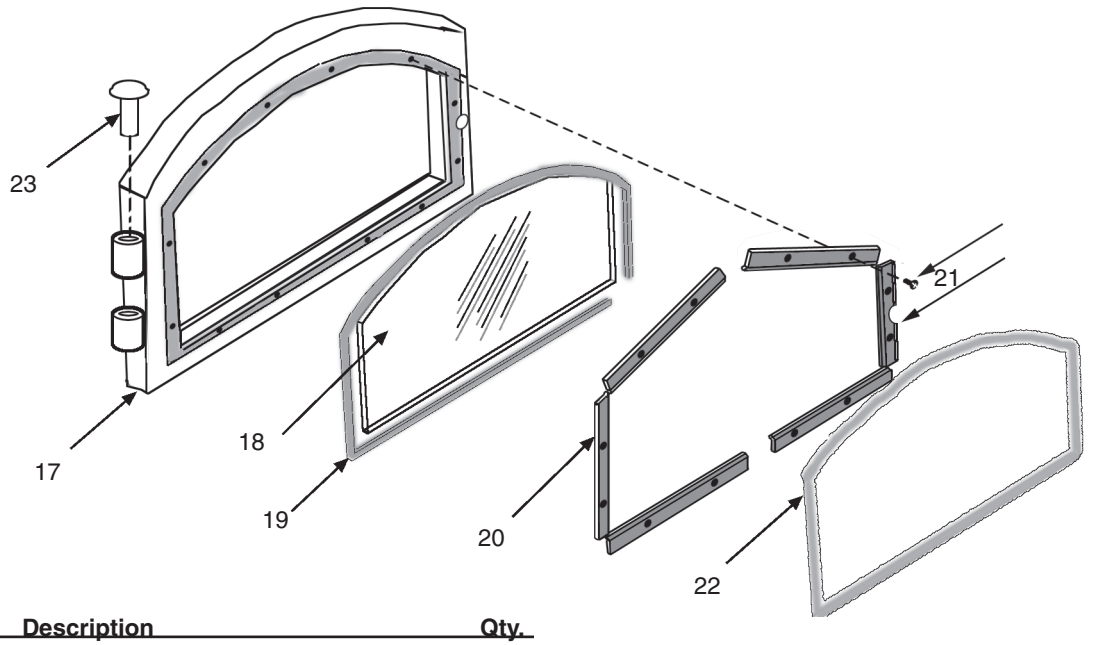
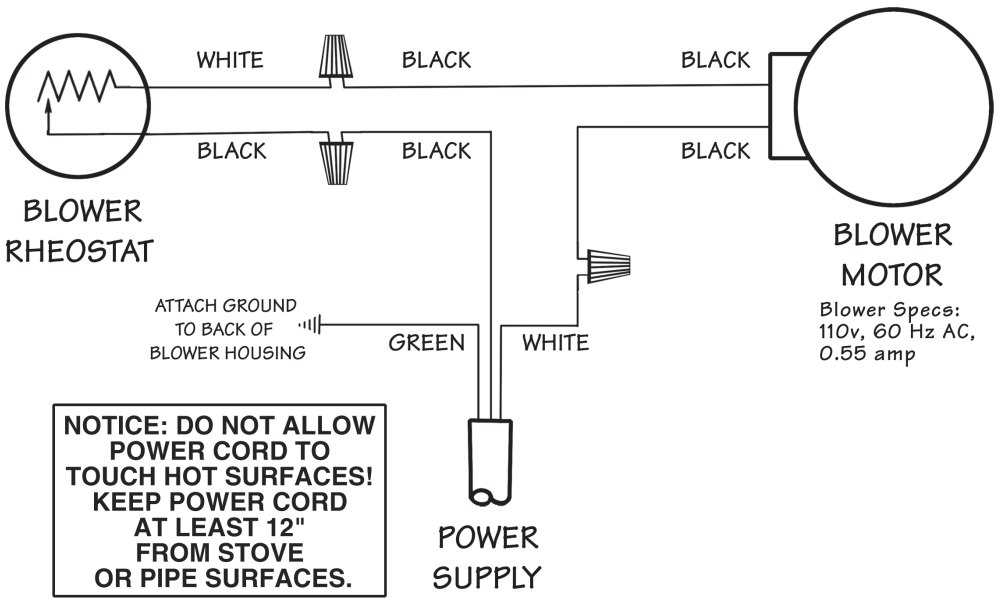


Part No.	Description	Qty.
15	**Door Assembly (complete)**	**1**
16	Handle Assembly (complete)	1
17	Door Frame	1
18	Door Glass	1
19	Gasket, 3/8” Fiberglass Glass	1
20	Retainer, Glass	1
21	Screws, Glass Retainer	8
22	Gasket, Door	1
23	Hinge Pin	2

WIRING DIAGRAM - DEFENDER BLOWER OPTION



FLOOR PROTECTOR MATERIAL CALCULATIONS

This stove has been tested for and must be installed on a floor protector with the proper Thermal Resistance or R-value as stated in the installation instructions on page 3, "Locating Stove" step 1, of this manual. If the floor protector materials listed in the instructions are not available, materials with an equivalent R-value may be substituted.

Alternate materials may be rated with C-factor (Thermal Conductance) or k-factor (Thermal Conductivity) ratings which must be converted to R-value to determine if the alternate material meets the tested requirements. The following instructions provide the proper information and formulas for conversion to R-value.

To determine if alternate materials are acceptable follow this sequence.

1. Convert material specifications to R-value:
   a. R-value given — no conversion necessary
   b. k-factor is given with a required thickness (T) in inches:
      $R = 1/k \times T$
   c. C-factor is given: $R = 1/C$
2. Determine the R-value of proposed alternate floor protector:
   a. Use formulas in step 1 above to calculate R-value of proposed material(s).
   b. For multiple layers, add R-values of each layer to determine overall R-value.
3. If the overall R-value of the floor protector system is equal to or greater than the floor protector specifications given, the alternate is acceptable.

Definitions:

Thermal conductance (C) = $\dfrac{\text{BTU}}{(\text{hr})(\text{ft}^2)(^\circ\text{F})} = \dfrac{\text{W}}{(\text{m}^2)(^\circ\text{K})}$

Thermal conductivity (k) = $\dfrac{(\text{Btu})(\text{inch})}{(\text{hr})(\text{ft}^2)(^\circ\text{F})} = \dfrac{\text{W}}{(\text{m})(^\circ\text{K})} = \dfrac{\text{Btu}}{(\text{hr})(\text{ft})(^\circ\text{F})}$

Thermal resistance (R) = $\dfrac{(\text{ft}^2)(\text{hr})(^\circ\text{F})}{\text{Btu}} = \dfrac{(\text{m}^2)(^\circ\text{K})}{\text{W}}$

Example:

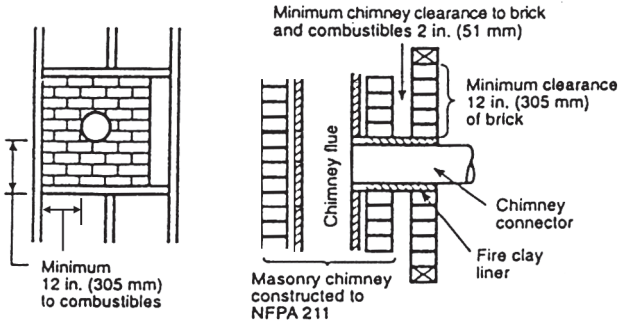
The specs of floor protector material should be 3/4-inch thick material with a k-factor of 0.84.
The proposed alternative material is 4" brick with a C-factor of 1.25 over 1/8-inch mineral board with a k-factor of 0.29.

Step 1: Convert specs to R-value.
$R = 1/k \times T = 1/0.84 \times 0.75 = 0.893$ System must have a R-value of 0.893 = Rspecs

Step 2: Calculate R-value of individual components
4" Brick with C-factor = 1.25. $R = 1/C = 1/1.25 = 0.80$ = Rbrick
1/8-inch (0.125") mineral board with k-factor = 0.29. $R = 1/0.29 \times 0.125 = 0.431$ = Rmin.brd.

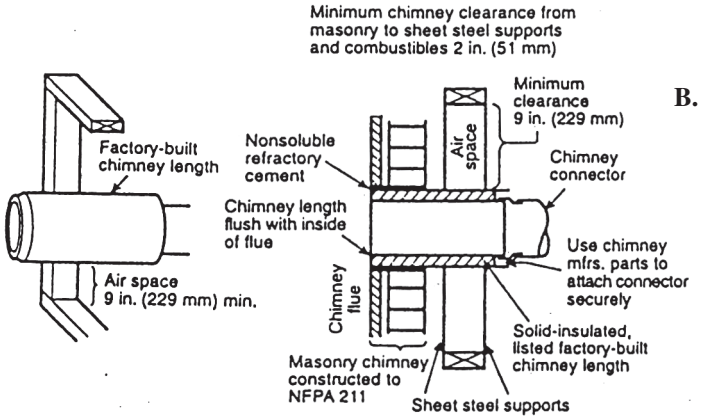
Step 3: Add R-values of components to get total R-value of system
Rbrick + Rmin.brd = 0.80 + 0.431 = 1.231 = Rsystem

Step 4: Compare Rsystem to Rspecs
Rsystem = 1.231 is larger than Rspecs of 0.893. System R-value exceeds the required specifications and therefore is an acceptable alternative.



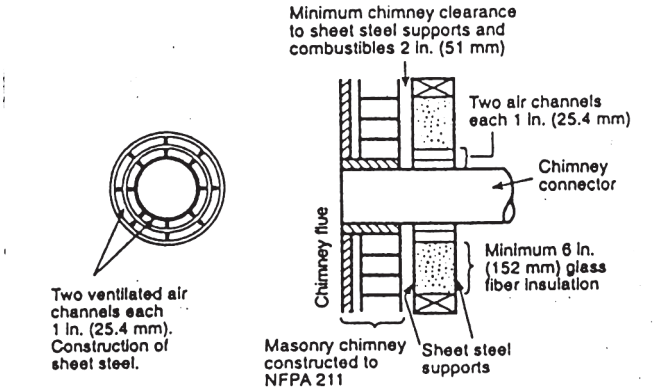
A. **Brick Masonry**

Minimum 3.5-inch thick brick masonry all framed into combustible wall with a minimum of 2-inch brick separation from clay liner to combustibles. The fireclay liner shall run from outer surface of brick wall to, but not beyond, the inner surface of chimney flue liner and shall be firmly cemented in place.



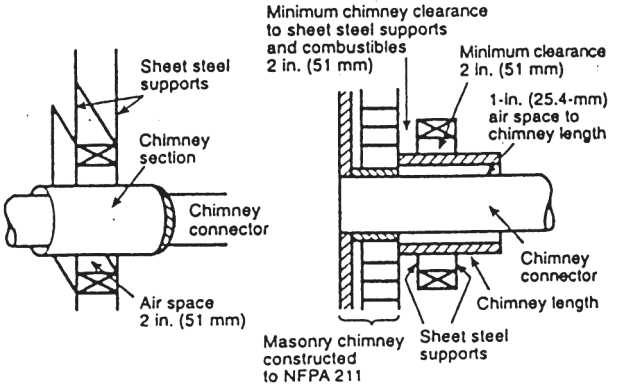
B. Insulated Sleeve

Solid-insulated, listed factory-built chimney length of the same inside diameter as the chimney connector and having 1-inch or more of insulation with a minimum 9-inch air space between the outer wall of the chimney length and combustibles.



C. Ventilated Thimble

Sheet steel chimney connector, minimum 24 gauge in thickness, with a ventilated thimble, minimum 24 gauge in thickness, having two 1-inch air channels, separated from combustibles by a minimum of 6-inch of glass fiber insulation. Opening shall be covered, and thimble supported with a sheet steel support, minimum 24 gauge in thickness.



D. Chimney Section Pass-through

Solid insulated, listed factory-built chimney length with an inside diameter 2-inch larger than the chimney connector and having 1-inch or more of insulation, serving as a pass-through for a single wall sheet steel chimney connector of minimum 24 gauge thickness, with a minimum 2-inch air space between the outer wall of chimney section and combustibles. Minimum length of chimney section shall be 12-inch chimney section spaced 1-inch away from connector using sheet steel support plates on both ends of chimney section. Opening shall be covered, and chimney section supported on both sides with sheet steel support securely fastened to wall surfaces of minimum 24 gauge thickness. Fasteners used to secure chimney section shall not penetrate chimney flue liner.

This Vogelzang heating appliance is safe when installed properly and will provide you with years of service. However, always exercise good judgement when you are using this stove. You are dealing with FIRE! Fire is inherently dangerous and must be treated with respect. Stay warm and in good health!

Respectfully yours,

Steve Vogelzang

Proprietor

DO <u>NOT</u> USE THIS STOVE IN A MOBILE HOME, MANUFACTURED HOME, TRAILER OR TENT — *<u>NO EXCEPTIONS!</u>*

COMPANY TESTIMONY:

"FOR GOD SO LOVED THE WORLD THAT HE GAVE HIS ONLY BEGOTTEN SON, THAT WHOEVER BELIEVES IN HIM SHALL NOT PERISH BUT HAVE ETERNAL LIFE"

JOHN 3:16

MADE IN CHINA

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